CHEMISTRY

BOOKS - PEARSON IIT JEE FOUNDATION

COMBUSTION AND FLAME

Master Your Test Solved Example

1. Answer the following questions given below on the basic of the given details:

Petrol, LPG, Wood, Paper, Sand, Water, Glass

Name two combustible substances.

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2. Answer the following questions given below on the basic of the given details:

Petrol, LPG, Wood, Paper, Sand, Water, Glass

Name two non-combustible substances.

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3. Discuss how food acts as a fuel for our body.

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4. What do you understand by the term combustion?

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5. Give two examples of non-combustible substance.

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6. What happens when:

Charcoal burns in air.

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7. What happens when:

Methane burns in air.

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8. Give one example for each of the following.

Combustible substance

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9. Give one example for each of the following.

Non-combustible substance

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10. Give one example for each of the following.

Inflammable substance

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11. Give one example for each of the following.

Supporter of combustion

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12. Explain the following.

What do you mean by supporter of combustion?

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13. Explain the following.

Give one of the necessary requirements for a combustible substance to burn.

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14. What do you understand by the term non-supporters of combustion? Also, give two examples.

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15. Define the term 'ignition temperature?

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16. Name two minimum requirements for combustion.

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17. Give one example of rapid combustion.

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18. Give an example of

Complete combustion.

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19. What do you understand by incomplete combustion?

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20. Give reasons for the following:

why do substance undergoes incomplete combustion gives out yellow flame?

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21. Give reasons for the following:

Why does a candle flame is yellow in colour?

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22. Why the flame of an LPG stove and the flame of a Bunsen burner are blue in colour?

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23. Write reactions for below conditions.

The combustion of methane in sufficient supply of air.

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24. Write reactions for below conditions.

the combustion of methane in insufficient supply of air.

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25. What is rapid combustion? Also, give an example.

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26. What is complete combustion? Explain with the chemical reactions.

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27. What happens when a fire brigade arrives at the place where the building is on fire? What does it do?

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28. Why do fire brigades pour water on the fire?

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29. What are the essential requirements to ignite fire?

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30. In what forms the LPG stored in cylinders?

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31. Give two ways through which we can extinguish fire.

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32. Give the working principle of soda-acid fire extinguisher. Also give one drawback of the soda-acid fire extinguisher.

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33. What is the difference between the burning of a candle and the burning of a fuel like coal ?

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34. How do you describe a flame?

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35. Coal does not give out a flame while burning. Why?

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36. Does all combustible substances give out a flame while burning?

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37. Does camphor produce flame?

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38. In which zone of a candle flame : complete combustion of fuel takes place ?

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39. Why luminous zone is yellow in colour in a candle flame?

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40. Which part of the candle flame is coldest?

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41. Give two examples of liquid fuels.

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42. Give two examples of solid fuels.

Watch Video Solution

43. Give two examples of gaseous fuels.

Watch Video Solution

44. Name any one harmful substance emitted when fossil fuels are burnt.

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45. Give two characteristics of ideal fuel.

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46. What do you understand by calorific value of a fuel. Give the SI unit of of calorific value?

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47. Give the calorific values of below fuels:

Petrol,

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48. Give the calorific values of below fuels:

Diesel

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49. Give the calorific values of below fuels:

LPG

Watch Video Solution

50. Give the three fossil fuels found on Earth.

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51. Give two drawbacks of burning fossil fuels.

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52. Give two harmful effects of

Carbon monoxide

Watch Video Solution

53. Give two harmful effects of

Sulphur dioxide

Watch Video Solution

54. Explain the effects caused by particulate matter in human health.

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55. What is acid rain?

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Track Your Learning I

1. Which of these things would have the lowest ignition temperature?

A. Paper

B. Wood

C. LPG

D. Glass

Answer: C

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2. Combustion is a

A. physical process

B. chemical process

C. Both (a) and (b)

D. None

Answer: B

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3. Combustion is an _____ process.

A. Endothermic

B. Exothermic

C. Reactive

D. Neutral

Answer: B

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4. Alcohol and _____ are the examples of combustible substances.

A. Coal

B. Sand

C. Water

D. Glass

Answer: A

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5. A combustible substance is usually made up of

A. Oxygen

B. Water

C. Hydrocarbons

D. Carbon

Answer: C

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6. _____ is an excellent supporter of combustion.

A. Oxygen

B. Water

C. Nitrogen

D. Hydrocarbons

Answer: A

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7. Which of these things would have the highest ignition temperature?

A. Paper

B. Wood

C. Glass

D. Metal

Answer: D

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Track Your Learning Ii

1. The flame given out during complete combustion is _____ in colour.

A. Red

B. Blue

C. Yellow

D. Brown

Answer: B

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2. Incomplete combustion produces _____ gas along with water.

A. Carbon dioxide

B. Carbon monoxide

C. Nitrogen dioxide

D. Nitrogen oxide

Answer: B

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3. The burning of a matchstick is an example of _____ combustion.

A. Complete

B. Incomplete

C. Rapid

D. Both (a) and (b)

Answer: C

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4. _____ is usually stored in water to avoid its spontaneous combustion in the presence of air.

A. Sodium

B. White phosphorus

C. Chlorine

D. Magnesium

Answer: B

 Watch Video Solution

5. _____ combustion is the reason why a candle flame is yellow in colour.

A. Incomplete

B. Complete

C. Rapid

D. Spontaneous

Answer: A

Watch Video Solution

6. In _____ combustion, a combustible substance is burnt in sufficient supply of air, carbon dioxide and water are formed. Some energy is also evolved in this process.

A. Incomplete

B. Complete

C. Rapid

D. Spontaneous

Answer: B

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7. The ignition temperature of a substance is very low in _____ combustion.

A. Incomplete

B. Complete

C. Rapid

D. Spontaneous

Answer: D

 Watch Video Solution

8. Examples of ____ combustion are the burning of a matchstick and the burning of an LPG gas stove.

A. Incomplete

B. Complete

C. Rapid

D. Spontaneous

Answer: C

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9. _____ combustion is the reason for the blue colour in Bunsen flame.

A. Incomplete

B. Complete

C. Rapid

D. Spontaneous

Answer: B

Watch Video Solution

10. In incomplete combustion, the leftover carbon particles from the combustible substance form ____ .

A. Soot

B. Ash

C. Carbon monoxide

D. Carbon dioxide

Answer: A

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Track Your Learning Iii

1. The acid used in a soda-aicd fire extinguisher _____ .

A. Nitric acid

B. Carbon dioxide

C. Sulphuric acid

D. Nitrogen dioxide

Answer: C

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2. A substance used to bring down the temperature of a burning wooden log below its ignition temperature ____.

A. Water

B. Oil

C. Kerosene

D. Carbon dioxide

Answer: A

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3. A gas formed in a soda-acid fire extinguisher and puts out fires is _____.

A. Nitric acid

B. Carbon dioxide

C. Sulphuric acid

D. Nitrogen dioxide

Answer: B

Watch Video Solution

4. _____ can be used to extinguish fires caused due to flammable liquid such as petrol and oil.

A. Soda-acid fire extinguisher

B. Carbon dioxide fire extinguisher

C. Both (a) and (b)

D. None of them

Answer: B

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5. The method, _____, is helpful only when substances such as wood, paper or clothes are burning.

A. Pouring water

B. Thick blanket

C. Throwing sand

D. None of them

Answer: A

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6. Pouring water method should never be used for electrical fires, as water is a good conductor of _____.

A. Electricity

B. Heat

C. Light

D. Both (a) and (b)

Answer: A

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7. When the carbon dioxide is sprayed on a burning material, the gas forms a _____ over the object and puts the fire out.

A. Blanket

B. Bubble

C. Clouds

D. None of them

Answer: A

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8. The best way to extinguish a fire is to cut off the supply of the _____.

A. Non-combustible substance

B. combustible substance

C. Carbon dioxide

D. Sulphuric acid

Answer: B

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Track Your Learning Iv

1. In the zone of _____, the wax vapours coming out of the candle burn completely due to sufficient supply.

A. Incomplete combustion

B. Luminous combustion

C. complete combustion

D. No combustion

Answer: C

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2. The luminous zone is _____ of the candle flame.

A. middle zone

B. Outer zone

C. Inner zone

D. Innermost zone

Answer: A

Watch Video Solution

3. This zone is also called the zone of ___ in a candle flame.

A. Incomplete combustion

B. no combustion

C. Complete combustion

D. Partial combustion

Answer: B

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4. In the _____, the wax vapours coming from the candle do not burn at all due to the absence of oxygen.

A. Dark zone

B. Blue zone

C. Innermost zone

D. Outer zone

Answer: A,C

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5. The flame in this ____ zone is blue in colour.

A. Non-luminous

B. Luminous

C. Dark zone

D. Inner dark zone

Answer: A

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6. The flame of a candle is shaped like a _____.

A. Spindle

B. Spiral

C. Ribbon

D. Balloon

Answer: A

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7. A ____ is produced only by those substances that vaporize on heating.

A. Combustion

B. Flame

C. Heating

D. Burning

Answer: B

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8. The coal does not vaporise on heating hence, it does not give out a ____ while burning.

A. Combustion

B. Flame

C. Heating

D. Burning

Answer: B

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Track Your Learning V

1. Which of these fuels has the highest calorific value?

A. Wood

B. LPG

C. Biogas

D. Coal

Answer: B

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2. Prolonged inhalation of _____ can lead to life-threatening diseases such as cancer.

A. Carbon monoxide

B. Carbon dioxide

C. Lead

D. Sulphur dioxide

Answer: C

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3. The particles forming smoke and ashes are then released into air known as

A. Carbon monoxide

B. Carbon dioxide

C. Lead

D. Particulate matter

Answer: D

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4. Particulate matter causes ____ in human.

A. Respiratory diseases

B. Cardiovascular diseases

C. Skeletal disorders

D. Digestive illness

Answer: A

 Watch Video Solution

5. The SI unit of calorific value is joules per _____.

A. kilogram

B. Gram

C. Erg

D. Sec

Answer: A

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6. The calorific values of Kerosene is _____.

A. $45,000$

B. $22,000$

C. $55,000$

D. $35,000$

Answer: A

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7. The presence of _____ in blood reduces the oxygen-carrying capacity of blood.

A. Carbon dioxide

B. Carboxyhaemoglobin

C. Lead

D. Mercury

Answer: B

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8. _____ causes melting of polar ice caps and floods of low-lying coastal areas.

A. Global warming

B. Eutrophication

C. Greenhouse gas

D. Acid rain

Answer: A

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9. Sulphur dioxide can also dissolve in rain water to form sulphuric acid leading to a harmful precipitation called ___.

A. Global warming

B. Eutrophication

C. Greenhouse gas

D. Acid rain

Answer: D

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10. _____ is a cleaner fuel.

A. CNG

B. Diesel

C. Petrol

D. Kerosene

Answer: A

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Hots Higher Order Thinking Skills

1. Explain why sodium metal is stored in kerosene.

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2. Why, CO_2 is considered as excellent extinguisher in case of fire involving electrical equipment? Explain.

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3. Explain why water is not used as an extinguisher in case of electrical fire.

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4. Water is not a suitable fire extinguisher to the fires involving oil and petrol because

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5. Why is sand used for extinguishing fire?

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6. We can boil water in a paper cup while paper catches fire easily. Explain the process.

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7. Do all the substances catch fire at the same temperature?

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8. How does fire brigade work?

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Classroom Corner Very Short Answer Type Questions Multiple Choice Question

1. Which of the following is a non-combustible substance?

A. Petrol

B. Sand

C. Paper

D. Wood

Answer: B

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2. What are the conditions necessary for combustion to take place ?

A. Combustible substance

B. Supporter substance

C. Ignition temperature

D. All of these

Answer: D

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3. Which of these substances undergoes spontaneous combustion in the presence of air?

A. Paper

B. LPG

C. Alcohol

D. Sodium

Answer: D

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4. Which gas is produced due to incomplete combustion of fuel?

A. Carbon dioxide

B. Sulphur dioxide

C. Carbon momoxide

D. Oxygen

Answer: C

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5. Which of these fire extinguishing methods can be used to put out an oil fire?

A. Pour water on the fire

B. Use a soda-acid fire extinguisher

C. Use a carbon dioxide fire extinguisher

D. All of these

Answer: C

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6. In which zone of a candle flame does no combustion take place?

A. Innermost zone

B. Middle zone

C. Outermost zone

D. There is no such zone in a candle flame

Answer: A

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7. The SI unit of calorific value is joules per _____.

A. joules per gram

B. joules per kilogram

C. kilojoules per gram

D. kilojoules per kilogram

Answer: D

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8. Which substance give heat and light after combustion?

A. Flame

B. Fuel

C. Combustion

D. None of these

Answer: B

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9. In the sun, heat and light are produced by

A. Combustion

B. Nuclear process

C. Burning

D. All of these

Answer: B

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10. Coal burns with

A. Flame

B. Only glow

C. Both flame and glow

D. None of these

Answer: B

Watch Video Solution

11. Burning of charcoal in a closed room will produce

A. Carbon dioxide

B. Nitrogen dioxide

C. Carbon momoxide

D. All of these

Answer: C

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12. The substances which have every low ignition temperature will

A. Catch fire easily

B. Will not catch fire

C. Catch fire after some time

D. None of these

Answer: A

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13. CNG and LPG are the examples of

A. Solid fuels

B. Liquid Fuels

C. Gaseous fuels

D. They are not fuels

Answer: C

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14. Ignition temperature is

A. Lowest temperature at catch fire

B. Higher temperature at catch fire

C. Any temperature

D. None of these

Answer: A

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15. Combustion is a

A. Chemical process

B. Physical process

C. Both of these processes

D. None of these processes

Answer: A

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16. What are the products of combustion of any fuel?

A. Carbon dioxide and water

B. Oxygen and water

C. Only carbon dioxide

D. Only oxygen

Answer: A

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17. There are following zones of a flame :-

A. Two

B. Three

C. Four

D. No any zone

Answer: B

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18. Burning of wood and coal causes _____ of air.

A. Combustion

B. Ignition

C. Burning

D. Pollution

Answer: D

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19. A liquid fuel used in homes is _____

A. Oil

B. Water

C. Kerosene

D. Vinegar

Answer: C

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20. A fuel must be heated to its _____ before it starts burning.

A. Ingition temperature

B. Pressure

C. Calorific value

D. None of them

Answer: A

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21. Fire produced by oil cannot be controlled by _____ _.

A. Sand

B. Water

C. CO_2

D. Oil

Answer: B

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22. Which of the following is fuel for our body?

A. Petrol

B. Diesel

C. Food

D. Water

Answer: C

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23. The _____ temperature at which a substance catches fire is called its _____ temperature.

A. High

B. Ignition

C. Low

D. Optimum

Answer: B

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24. A combustible substance is usually made of ____, which are compounds of carbon and hydrogen.

A. Halogens

B. Hydrocarbons

C. Alcohol

D. Esters

Answer: B

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25. _____ is a chemical process in which a substance reacts with oxygen to give off heat.

A. Ignition

B. Combustion

C. Burning of substance

D. Heating

Answer: B

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26. When a substance burns in sufficient supply of air, it produces a blue flame and it said to have undergone _____ combustion.

A. Complete

B. Incomplete

C. Partial

D. Full

Answer: A,D

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27. During incomplete combustion, the ____ formed from leftover carbon particles glow to give off a yellow flame.

A. Ash

B. Soot

C. Carbon dioxide

D. None of them

Answer: B

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28. The soda and acid present in a soda-acid fire extinguisher combine to form _____ along with carbon dioxide and water.

A. Sodium sulphate

B. Sodium bisulphate

C. Sodium carbonate

D. Sodium bicarbonate

Answer: A

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29. The flame of a candle is shaped like a _____.

A. Spiral

B. Spindle

C. Ribbon

D. Oval

Answer: B

Watch Video Solution

30. The middle zone of a candle flame is also called the zone of _____ combustion.

A. Full

B. Incomplete

C. Complete

D. Partial

Answer: B,D

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31. The efficiency of a fuel cell is given by:

A. SI

B. Calorific

C. Ignition

D. Combustion

Answer: B

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32. Acid rain occurs when _____ gas present in the atmosphere dissolves in rain water to form sulphuric acid.

A. Sulphur dioxide

B. Sulphur oxide

C. Carbon monoxide

D. Carbon dioxide

Answer: A

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Classroom Corner Very Short Answer Type Questions Comprehenssion Based Questions

1. Acid rain, or acid deposition, is a board term that nicludes any form of precipitation with acidic components, such as sulfuric or nitric acid that fall to the ground from the atmosphere in wet or dry forms. This can include rain, snow, fog, hail or even dust that is acidic. Acidic water usually has pH 2.5 to 4.5, which poisons the ecosystem and adversley affects plants, fishes, mammals. It is caused by

industrial pollutants, mainly sulfur oxides and nitrogen oxides, emitted into the atmosphere and returning to earth in the form of acidic rain water.

Read the below questions and try to answer them.

Which of the following gases are main contributors to acid rain?

A. Carbon dioxide and carbon monoxide

B. Sulphur dioxide and carbon dioxide

C. Sulphur dioxide and nitrogen dioxide

D. Sulphur dioxide and nitrous oxide

Answer:

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2. Acid rain, or acid deposition, is a board term that nicludes any form of precipitation with acidic components, such as sulfuric or nitric acid that fall to the ground from the atmosphere in wet or dry forms. This can include rain, snow, fog, hail or even dust that

is acidic. Acidic water usually has pH 2.5 to 4.5, which poisons the ecosystem and adversley affects plants, fishes, mammals. It is caused by industrial pollutants, mainly sulfur oxides and nitrogen oxides, emitted into the atmosphere and returning to earth in the form of acidic rain water.

Read the below questions and try to answer them.

Below which of the following pH is rain regarded as acid rain?

A. 7

B. 7.3

C. 5.6

D. 6

Answer:

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3. Acid rain, or acid deposition, is a board term that nicludes any form of precipitation with acidic components, such as sulfuric or nitric acid that fall to the ground from the

atmosphere in wet or dry forms. This can include rain, snow, fog, hail or even dust that is acidic. Acidic water usually has pH 2.5 to 4.5, which poisons the ecosystem and adversley affects plants, fishes, mammals. It is caused by industrial pollutants, mainly sulfur oxides and nitrogen oxides, emitted into the atmosphere and returning to earth in the form of acidic rain water.

Read the below questions and try to answer them.

How acidic is acid rain?

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4. Acid rain, or acid deposition, is a board term that nicludes any form of precipitation with acidic components, such as sulfuric or nitric acid that fall to the ground from the atmosphere in wet or dry forms. This can include rain, snow, fog, hail or even dust that is acidic. Acidic water usually has pH 2.5 to 4.5, which poisons the ecosystem and adversley affects plants, fishes, mammals. It is caused by industrial pollutants, mainly sulfur oxides and nitrogen oxides, emitted into the atmosphere

and returning to earth in the form of acidic rain water.

Read the below questions and try to answer them.

How much damage does a building receive from acid rain?

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5. You have seen homes, shops and factories caught in fire news, or in newspaper, or in real. Do you think how can the fire be controlled

from spreding? Generally, water is used to control fire. Water brings down the temperature of the combustible substance below its ignition temperature. The water vapour surrounds the combustible material, thus helping in cutting off the supply of air. Fire produced by the burning of oil or petrol cannot be controlled by throwing water on it because water being heavier than oil, settles down the oil and oil continues to burn. In the case of fires caused by burning liquid fuels, such as kerosene oil can be controlled by throwing sand or soil over it.

Read the below questions and try to answer them.

Give 3 conditions necessary for producing and sustaining combustion

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temperature of the combustible substance below its ignition temperature. The water vapour surrounds the combustible material, thus helping in cutting off the supply of air. Fire produced by the burning of oil or petrol cannot be controlled by throwing water on it because water being heavier than oil, settles down the oil and oil continues to burn. In the case of fires caused by burning liquid fuels, such as kerosene oil can be controlled by throwing sand or soil over it.

Read the below questions and try to answer them.

Expalin why fire extinguisher use carbon dioxide?

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7. You have seen homes, shops and factories caught in fire news, or in newspaper, or in real. Do you think how can the fire be controlled from spreding? Generally, water is used to control fire. Water brings down the temperature of the combustible substance below its ignition temperature. The water

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Read the below questions and try to answer them.

What should you do if you use a carbon dioxide fire extinguisher?

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8. You have seen homes, shops and factories caught in fire news, or in newspaper, or in real. Do you think how can the fire be controlled from spreding? Generally, water is used to control fire. Water brings down the temperature of the combustible substance below its ignition temperature. The water vapour surrounds the combustible material, thus helping in cutting off the supply of air. Fire produced by the burning of oil or petrol

cannot be controlled by throwing water on it because water being heavier than oil, settles down the oil and oil continues to burn. In the case of fires caused by burning liquid fuels, such as kerosene oil can be controlled by throwing sand or soil over it.

Read the below questions and try to answer them.

Can you use CO_2 extinguisher on electrical fires?

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Classroom Corner Very Short Answer Type Questions Subjective Type Questions

1. Explain why combustion is called an exothermic process.

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2. We are advised to immediately turn off the valve of a gas cylinder in case there is a fire in the house. Comment and justify your answer.

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3. Why is sodium metal kept under kerosene oil ?

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4. Explain why water should never be used to put out oil or petrol fires.

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5. Discuss when we light a candle, only the wax in it burns but the wick does not burn along with the wax. Comment.

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6. Explain why soot is produced during incomplete combustion.

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7. Give reason for the following points:

A person whose clothes are on fire should be covered with a thick blanket to put out the fire.

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8. Give reason for the following points:

Carbon monoxide can decrease the oxygen-carrying capacity of blood.

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9. Explain why excessive carbon dioxide gas in the atmosphere has led to globel warming.

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10. Explain why are utensils used to cook food on stoves usually made of metals.

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11. Forest fires are a result of which type of combustion and why? Comment.

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12. Explain why CO_2 is considered as the best fire extinguisher. Justify your answer.

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Classroom Corner Very Short Answer Type Questions Assertion Reason Type Questions

1. Assertion : CNG and LPG are not ecofriendly fuels.

Reason : They produce many harmful pollution.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: D

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2. Assertion : We can boil water in a paper cup.

Reason : Ignition temperature of paper is too high

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C

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3. Assertion : Charcoal does not produce a flame.

Reason : Charcoal does not vaporise.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

4. Assertion : Alcohol and petrol can be used as household fuels for cooking.

Reason : They are not highly inflammable substances.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: D

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5. Assertion : Candle burns with a flame whereas coal does not.

Reason : Coal is converted to vapours on combustion.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of

assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C

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Classroom Corner Short Answer Type Questions

1. Why is combustion known as a chemical process? Discuss.

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2. Explain why does a matchstick produce a flame on burning.

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3. Why do goldsmiths use the outermost zone of the flame for melting gold and silver?

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4. What do you understand by fuel?

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5. Why is sulphur not used as a fuel even though it can burn in air to produce heat?

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6. Can the process of rusting be called combustion? Discuss.

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7. The water heated by Ramesh will get heated in a shorter time because he kept his beaker near the hottest zone of the flame. Comment.

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8. It is difficult to burn a heap of green leaves but dry leaves catch fire easily. Explain.

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9. Which zone of a flame does a goldsmith use for melting gold and silver and why?

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10. Explain how is CO_2 able to control fire?

Watch Video Solution

11. Give reasons.

Water is not used to control fires involving

electrical equipment.

Watch Video Solution

12. Give reasons for the following : LPG is a better domestic fuel than wood.

Watch Video Solution

13. Give reason for the following :

paper by itself catches fire easily whereas a

piece of paper wrapped around an aluminium pipe does not.

Watch Video Solution

14. Explain how the use of CNG in automobiles has reduced pollution in our cities.

Watch Video Solution

15. Compare LPG and wood as fuels.

Watch Video Solution

16. Does all combustible substances give out a flame while burning?

Watch Video Solution

17. Why does charcoal not produce flame?

Watch Video Solution

18. Which fuel does not burn with a flame? Comment.

Watch Video Solution

19. Does magnesium burn with a flame? Explain in your own words.

Watch Video Solution

20. Explain why how flame is formed.

Watch Video Solution

21. Define incomplete and complete combustion.

Watch Video Solution

22. Why is magnesium so flammable? Justify your answer.

Watch Video Solution

23. What colour flame is the coolest in a candle?

Watch Video Solution

24. How does water poured on a burning log of wood help extinguish the fire?

Watch Video Solution

25. Why LPG is stored in liquid form?

Watch Video Solution

26. Why are gas bottles formed in the shape of a cylinder?

Watch Video Solution

27. Why is liquid stored in cylinders rather than boxes like other cargo?

Watch Video Solution

28. Discuss what happens when LPG leaks.

Watch Video Solution

29. Why is blue fire considered the hottest?

Watch Video Solution

30. What is the coldest fire color in a candle flame?

Watch Video Solution

31. Discuss at what temperature does clothes catch on fire.

Watch Video Solution

32. Explain why does a matchstick not burn on its own.

Watch Video Solution

33. What are the conditions necessary for combustion to take place ?

Watch Video Solution

34. How will you show that air is necessary for combustion ?

Watch Video Solution

35. Explain why heat is produced by the sun.

Watch Video Solution

36. Why are the flames of candles and oil lamps usually used for lighting dark areas but flames of Bunsen burners and LPG stoves usually used for heating purpose?

Watch Video Solution

37. Explain why you are asked to stay close to the ground while escaping a fire.

Watch Video Solution

Classroom Corner Long Answer Type Questions

1. Scientist are trying to look for the options that can minimize then use of fossil fuels. What are the available options of renewable energy resources?

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2. Scientist are trying to look for the options that can minimize then use of fossil fuels.

How can the common people contribute towards minimizing the use of fossil fuels?

Watch Video Solution

3. In order to melt metals such as gold and silver, goldsmiths blow the outermost zone of a flame towards the gold or silver using a metallic blow-pipe.

Why is the outermost zone of the flame blown towards the gold or silver?

Watch Video Solution

4. In order to melt metals such as gold and silver, goldsmiths blow the outermost zone of a flame towards the gold or silver using a metallic blow-pipe.

Can a goldsmith achieve a similar result if he / she blew the innermost zone of a flame

towards the gold or silver? Give a reason for your answer.

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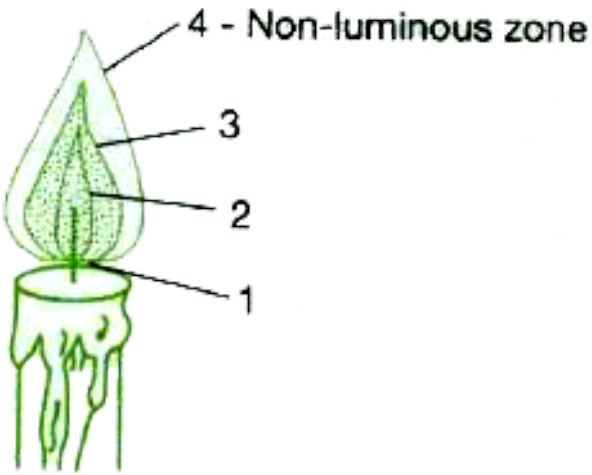
5. Discuss why is the person caught in fire, is covered with a blanket.

Watch Video Solution

6. Discuss the difference between rapid and spontaneous combustion.

Watch Video Solution

7. In order to understand the structure of a flame, light a wax candle and watch its flame. Carefully note the different coloured zones in the flame. Starting from the base of the flame, a flame has three zones. Check the below figure and try to answer the following question

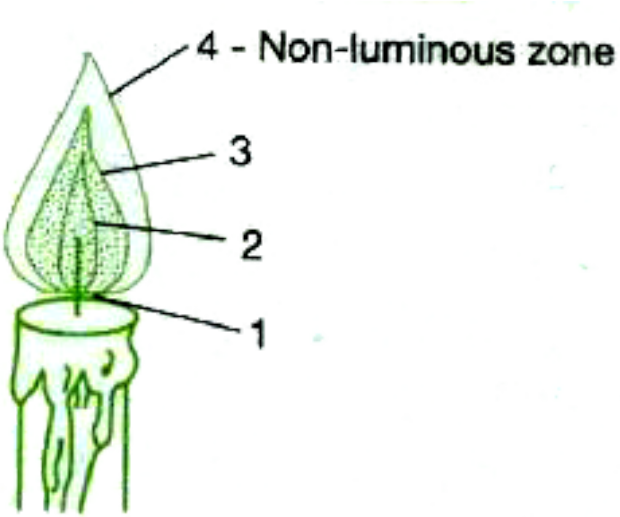


The diagram shows different zones of candle flames. Label 2, 3, 4 also give the colour of the zone.

Watch Video Solution

8. In order to understand the structure of a flame, light a wax candle and watch its flame.

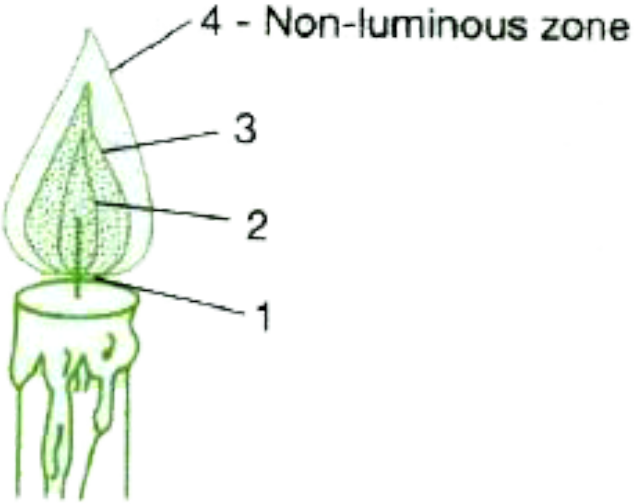
Carefully note the different coloured zones in the flame. Starting from the base of the flame, a flame has three zones. Check the below figure and try to answer the following question



Expalin why dark zone is the coldest part of a candle flame.

Watch Video Solution

9. In order to understand the structure of a flame, light a wax candle and watch its flame. Carefully note the different coloured zones in the flame. Starting from the base of the flame, a flame has three zones. Check the below figure and try to answer the following question

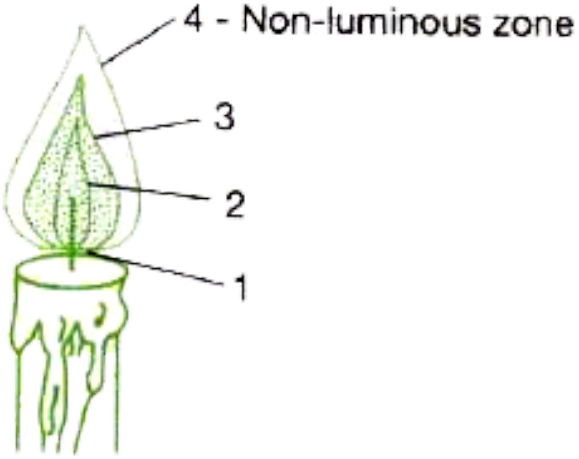


Which zone gives rise to soot?

Watch Video Solution

10. In order to understand the structure of a flame, light a wax candle and watch its flame. Carefully note the different coloured zones in

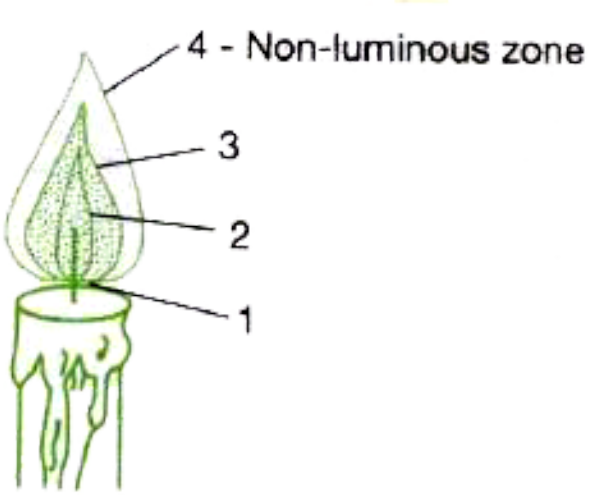
the flame. Starting from the base of the flame, a flame has three zones. Check the below figure and try to answer the following question



Why the flame in the outermost zone is blue in colour?

Watch Video Solution

11. In order to understand the structure of a flame, light a wax candle and watch its flame. Carefully note the different coloured zones in the flame. Starting from the base of the flame, a flame has three zones. Check the below figure and try to answer the following question



What do you understand by flame?

Watch Video Solution

12. Combustion is a chemical process and brings about a chemical change in the substance, i.e., the chemical properties of the substance change upon combustion. Read the

questions below and try to answer them.

Fill the table below and tick which of the given product does burn or not.

Objects	Burns/Does not burn
Paper	
Iron nails	
Stone	
Dried leaves	

Watch Video Solution

13. Combustion is a chemical process and brings about a chemical change in the substance, i.e., the chemical properties of the

substance change upon combustion. Read the questions below and try to answer them.

Discuss the supporter of combustion.

Watch Video Solution

14. Combustion is a chemical process and brings about a chemical change in the substance, i.e., the chemical properties of the substance change upon combustion. Read the questions below and try to answer them.

We do not see things such as cotton clothes

and wooden pencils catching fire on their own.

Why is this so?

 Watch Video Solution

15. Combustion is a chemical process and brings about a chemical change in the substance, i.e., the chemical properties of the substance change upon combustion. Read the questions below and try to answer them.

Give two examples of non-supporter of combustion.

Watch Video Solution

16. Combustion is a chemical process and brings about a chemical change in the substance, i.e., the chemical properties of the substance change upon combustion. Read the questions below and try to answer them.

What are inflammable substances. Give two examples.

Watch Video Solution

17. A combstible substance is made up of hydrocarbons (compounds containing carbon and hydrogen). When such a substance is burnt in air, carbon dioxide and water are formed, with the evolution of heat and light. Discuss the basic characteristics difference between complete and incomplete combustion.

Watch Video Solution

18. A combstible substance is made up of hydrocarbons (compounds containing carbon and hydrogen). When such a substance is burnt in air, carbon dioxide and water are formed, with the evolution of heat and light. Explain why any substance undergoing incomplete combustion gives out yellow flame.

Watch Video Solution

19. A combstible substance is made up of hydrocarbons (compounds containing carbon and hydrogen). When such a substance is burnt in air, carbon dioxide and water are formed, with the evolution of heat and light. Give the chemical equation when combustible substance is heated in sufficient supply in air.

Watch Video Solution

20. A combstible substance is made up of hydrocarbons (compounds containing carbon and hydrogen). When such a substance is burnt in air, carbon dioxide and water are formed, with the evolution of heat and light. Explain why the complete combustion of LPG gives blue flame.

Watch Video Solution

21. A combstible substance is made up of hydrocarbons (compounds containing carbon and hydrogen). When such a substance is burnt in air, carbon dioxide and water are formed, with the evolution of heat and light. Expalin how carbon monoxide and water are formed, when substances are burned in insufficient supply of air.

Watch Video Solution

22. A substance that burns to give a large amount of heat at a reasonable cost is called a fuel. A fuel contains carbon and hydrogen as main combustible elements. Fuel is any material that can be made to react with other substances so that it releases chaemical or nuclear energy as heat or to be used for work. We use different kinds of fuels in our daily lives, such as coal, wood, petrol, diesel, LPG and CNG. Read the below questions and try to answer them.

How can we calssify fuels?

Watch Video Solution

23. A substance that burns to give a large amount of heat at a reasonable cost is called a fuel. A fuel contains carbon and hydrogen as main combustible elements. Fuel is any material that can be made to react with other substances so that it releases chaemical or nuclear energy as heat or to be used for work. We use different kinds of fuels in our daily lives, such as coal, wood, petrol, diesel, LPG and CNG. Read the below questions and try to

answer them.

Discuss the calorific value of a fuel.

Watch Video Solution

24. A substance that burns to give a large amount of heat at a reasonable cost is called a fuel. A fuel contains carbon and hydrogen as main combustible elements. Fuel is any material that can be made to react with other substances so that it releases chaemical or nuclear energy as heat or to be used for work.

We use different kinds of fuels in our daily lives, such as coal, wood, petrol, diesel, LPG and CNG. Read the below questions and try to answer them.

Give the characteristics features of an ideal fuel.

Watch Video Solution

25. A substance that burns to give a large amount of heat at a reasonable cost is called a fuel. A fuel contains carbon and hydrogen as

main combustible elements. Fuel is any material that can be made to react with other substances so that it releases chaemical or nuclear energy as heat or to be used for work. We use different kinds of fuels in our daily lives, such as coal, wood, petrol, diesel, LPG and CNG. Read the below questions and try to answer them.

Give two examples of solid and liquid fuel.

Watch Video Solution

26. A substance that burns to give a large amount of heat at a reasonable cost is called a fuel. A fuel contains carbon and hydrogen as main combustible elements. Fuel is any material that can be made to react with other substances so that it releases chaemical or nuclear energy as heat or to be used for work. We use different kinds of fuels in our daily lives, such as coal, wood, petrol, diesel, LPG and CNG. Read the below questions and try to answer them.

Give the calorific values of diesel and petrol.

Watch Video Solution

27. Give the harmful effects of below substances on human health.

Carbon monoxide

Watch Video Solution

28. Give the harmful effects of below substances on human health.

Carbon dioxide

Watch Video Solution

29. Give the harmful effects of below substances on human health.

Suspended particulate matter

Watch Video Solution

30. Give the harmful effects of below substances on human health.

Lead compounds

Watch Video Solution

31. Give the harmful effects of below substances on human health.

Oxides of sulphur and nitrogen

Watch Video Solution

32. In an experiment 4.5 kg of a fuel was completely burnt. The heat produced was measured to be 180,000 kJ. Calculate the calorific value of the fuel.

Watch Video Solution

33. In an experiment 50 kg of a coal was burnt completely. The calorific value of the coal is 25,000 J / kg. Calculate the heat produced while the burning of the coal.

Watch Video Solution

34. Explain below points:

Draw a neat, labelled diagram of a soda-acid fire extinguisher.

Watch Video Solution

35. Explain below points:

State the chemical reaction that takes place between the contents of a soda-acid fire extinguisher when its knob is struck.

Watch Video Solution

36. Explain below points:

Give the working principle of soda-acid fire

extinguisher.

Watch Video Solution

37. Explain few drawbacks of burning of fossil fuel.

Watch Video Solution

38. One of the burners in Misha's stove is giving off a yellow flame on the right side, but a normal blue flame elsewhere. The bottoms of

her utensils are also turning black? What could be the problem? How can this be fixed?

Watch Video Solution

39. Look at the picture shown below.

(a) What is process shown in the picture?

(b) Do you think all substances in nature exhibit this characteristics?

Watch Video Solution

Competition Corner

1. What is the cause of suspended particulate matter in the atmosphere?

A. Availability of oxygen in environment

B. Incomplete combustion

C. Natural disasters

D. Deforestation

Answer: B

Watch Video Solution

2. What is the characteristic of an ideal fuel?

A. Should be cheap

B. Should be easy to find

C. Should not leave residue on burning

D. Should be easy to burn without heating.

Answer: A,B,C

Watch Video Solution

3. What is the SI unit of calorific value?

A. Kilo joules per kilogram

B. Kilo joules per gram

C. Joules per kilogram

D. Joules per gram

Answer: C

Watch Video Solution

4. Which of these is a solid fuel?

A. Coal

B. LPG

C. Diesel

D. Kerosene

Answer: A

Watch Video Solution

5. Dark zone is also called zone of _____.

A. complete combustion

B. partial combustion

C. high combustion

D. no combustion

Answer: D

Watch Video Solution

6. In which zone of a candle flame : complete combustion of fuel takes place ?

A. Dark

B. Luminous

C. Shadowed

D. Non-luminous

Answer: D

Watch Video Solution

7. What changes the colours of the flame of a candle?

A. Difference in amount of oxygen available

B. Defects in manufacturing of candle

C. Temperature of surroundings

D. Flow of winds

Answer: A

Watch Video Solution

8. When does a substance produce flame during combustion?

A. When its vapourises

B. When its cools down

C. When its gets heated

D. When water is poured over it

Answer: A

Watch Video Solution

9. What is an identifying feature of a carbon dioxide fire extinguisher?

A. Red body and black neck

B. Yellow body and white neck

C. Red body and red bended neck

D. Yellow body and black bended neck

Answer: C

Watch Video Solution

10. Which two chemicals react in a soda-acid fire extinguisher?

A. Sodium bicarbonate and hydrochloric acid

B. Sodium hydroxide and hydrochloric acid

C. Sodium bicarbonate and sulphuric acid

D. Hydrochloric acid and sulphuric acid

Answer: C

Watch Video Solution

11. Why is the use of water avoided to extinguisher electrical fires?

A. Water is good conductor of electricity.

B. Water produces thick black soot.

C. Water supports combustion.

D. water blinds firefighters.

Answer: A

Watch Video Solution

12. How can we extinguish a fire?

A. Throw other objects on it

B. Stop the supply of oxygen

C. Check for nearby windows and doors

D. Increase the temperature of the substance

Answer: B

Watch Video Solution

13. Which of these is an example of incomplete combustion?

A. Red flame from burning charcoal

B. Black smoke of candle

C. Yellow flame of candle

D. Blue flame of burner

Answer: C

Watch Video Solution

14. In which reaction a combustible substance reacts with oxygen to give carbon dioxide, water and energy?

A. Spontaneous combustion

B. Incomplete combustion

C. Complete combustion

D. Rapid combustion

Answer: C

Watch Video Solution

15. Why is sodium metal kept under kerosene oil ?

A. It catch fire in air.

B. It reacts with kerosene.

C. It dissolves in kerosene.

D. It maintains the lustre of sodium.

Answer: A

Watch Video Solution

16. Which of these is an example of rapid combustion?

A. Burning of phosphorous in air

B. Burning of methane in air

C. Burning of a match stick

D. Burning of paper

Answer: C

Watch Video Solution

17. Which of the following is a supporter of combustion?

A. Carbon dioxide

B. Hydrogen

C. Nitrogen

D. Oxygen

Answer: D

 Watch Video Solution

18. Which of these is an inflammable substance?

A. Iron

B. Oxygen

C. Paper

D. Water

Answer: C

Watch Video Solution

19. Which of these is an example of a non-combustible substance?

A. Kerosene

B. Petrol

C. Water

D. LPG

Answer: C

Watch Video Solution

20. What type of change is combustion?

A. chemical irreversible change

B. physical irreversible change

C. chemical reversible change

D. physical reversible change

Answer: A

Watch Video Solution

21. Which of these fuels has the highest calorific value?

A. Biogas

B. Wood

C. LPG

D. Coal

Answer: C

Watch Video Solution

22. Which of these things would have the lowest ignition temperature?

A. Paper

B. Wood

C. Glass

D. LPG

Answer: D

Watch Video Solution

23. The SI unit of calorific value is joules per _____.

A. Joules per gram

B. kilojoules per gram

C. Joules per kilogram

D. Kilojoules per kilogram

Answer: C

Watch Video Solution

24. In which zone of a candle flame does no combustion take place?

A. Middle zone

B. Innermost zone

C. Outernost zone

D. There is no such zone in a candle flame

Answer: B

Watch Video Solution

25. Which of these fire extinguishing methods can be used to put out an oil fire?

A. Pour water on the fire

B. Use a soda-acid free extinguisher

C. Use a carbon dioxide fire extinguisher

D. All of these

Answer: C

Watch Video Solution

26. Which gas is produced due to incomplete combustion of fuel?

A. Carbon monoxide

B. Sulphur dioxide

C. Carbon dioxide

D. Oxygen

Answer: A

Watch Video Solution

27. Which of the substances undergoes spontaneous combustion in the presence of air?

A. LPG

B. Paper

C. Alcohol

D. Sodium

Answer: D

Watch Video Solution

28. What are the conditions necessary for combustion to take place ?

A. Ignition temperature

B. Combustible substance

C. Supporter of combustion

D. All of these

Answer: D

Watch Video Solution

29. Which of these is a non-combustible substance?

A. Sand

B. Wood

C. Paper

D. Petrol

Answer: A

Watch Video Solution

30. Unburnt carbon particles of the fuel cause

A. Stomach infection

B. Respiratory problems

C. Brain infection

D. Skin problems

Answer: B

 Watch Video Solution